

# Amphibians Tell Environment's Health

Amphibians such as frogs and salamanders lead double lives, moving in and out of water. Even the word “amphibian” comes from a Latin term meaning “double life.” Wetlands along the Tulalip Reservation are a veritable treasure trove of these creatures.

From tree frogs to salamanders, a host of amphibians rely on wetlands around the reservation for survival. Yet relatively little is known about the animals living here. How many frogs populate the ponds? How many salamanders slink among the reeds? The answers to these and other questions will offer crucially important information for environmental planners – and a new study by the Tulalip Tribes aims to provide those answers.

“The main reason we’re doing this study is to collect baseline data,” said Mike Sevigny, a wildlife biologist with the Tulalip Tribes. “That way, if we come back and study this area a few years down the road and things have drastically changed, it may give us some indication of what’s been happening in the environment.”

Since February, crews from the Tulalip Tribes have been researching four different wetlands on the tribes’ reservation. They search for amphibian eggs, collect samples of adult animals, track vegetation distribution patterns and measure water quality indicators. This information will be combined into a careful biological assessment of Tulalip wetlands.

Primarily, that involves searching for masses of frog and salamander eggs. Many amphibians lay hundreds of eggs at a time in large clusters, which Tulalip researchers find and mark, keeping track of numbers, egg health and other indicators of breeding activity. To date, tribal researchers have counted egg masses for three different amphibians: the Pacific tree frog, one of the smallest (but loudest) amphibians in the Pacific Northwest; the red-legged frog; and the northwest salamander.



Mike Sevigny, a wildlife biologist with the Tulalip Tribes, peers into a dish of amphibians during a series of surveys on the tribe’s reservation near Marysville. *Photo: J. Shaw*

“We know that other amphibians live here, too. We’ve trapped adult long-toed salamanders and rough-skinned newts,” said Sevigny. “But chances of finding eggs from these species are slim to none, since they lay only a single egg in leaf litter.”

While it’s impossible to draw many firm conclusions with just a year’s worth of data, the surveys have already borne fruit in several ways. First, scientists are noting any mutations they discover, which may be a sign of environmental changes. So far, they’ve documented six tail mutations suffered by red-legged frog tadpoles in just one of the wetlands.

“It’s a minor mutation – a bent or forked tail – but it’s definitely a mu-

tation,” said Sevigny. This might indicate that the embryo was damaged during development somehow, perhaps due to environmental changes. Tracking mutations, even minor ones, can provide clues about environmental conditions. In addition to climactic changes, pollution and other forms of environmental damage can hurt amphibian development.

Additionally, the Tulalips are taking stock of vegetation and water quality data, information that will help scientists understand why animals prefer one area over another. Most of the studied wetlands are bordered by some type of forest, and sampling will help determine what type of habitat amphibians use and why.

Sampling also turned up one exotic find: an oriental weather fish. This eel-like species not native to the area was found in Tulalip Creek below the tribes’ Bernie Kai Kai Gobin Salmon Hatchery. Only one viable population of this fish, likely an aquarium pet that was released, is known to exist in Washington. Sevigny speculates that Lake Weallup, which feeds into Tulalip Creek, may be home to a second viable population; this study aims to confirm that.

The project is funded by a grant from the federal Environmental Protection Agency. – *J. Shaw*